FOR MYSORE STATE

9-11-53.

Public Works (1955) Department.

Ms SERIES.

G.O. No. 3214

3214

Dated 22 - 8 - 55

Passed
Vide
Superintendent
24

[Despatch Abstract.]

Communications - Bridges - South Kanara District - Reconstructing Bridge at mile 52/8 of Mangalore-Agumbe road - Revised estimate - Sanctioned.

HIGHWAYS DEPARTMENT.

From
Sri K.K.Nambiar, B.E.,M.I.E.(Ind),
F.Inst.H.E.(Eng)M.I.Mun.E.(Eng),
M.Am.Soc.,C.E.,
Chief Engineer (Highways),
Chepauk, Madras. 5.

To
The Secretary to Government,
Public Works Department,
Fort. St. George, Madras.9.

55259
PUBLIC WORKS DEPARTMENT

Letter No. SD20-E4-55-3 dated 28.6.55

Sir,

Sub: Communications--Bridges--South Kanara District--Reconstructing a bridge at Mile 52/8 of Mangalore Agumbe road--Revised administrative approval—requested for Rs. 1.24 lakhs:

Ref: G.O.Ms. 2804 P.W.D. dated 26..7..49.

****

I herewith forward a revised estimate for Rs. 1.24 lakhs for the above work.

2/ Administrative approval was accorded for Rs. 90,000/- in G.O.Ms.No.28 P.W. dated 26..7..49. The original estimate was sanctioned by Superintending Engineer (Bridges) for Rs. 96,000/-.

3/ The estimate was prepared in the year 1950-51. However the work was started in the year 1951-52. Hence it was found necessary to revise the original estimate with the then current schedule of rates (1951-52). A revised estimate was prepared for Rs. 99,000/- adopting the schedule of rates of the year 1951-52 with certain minor modifications. The same was sanctioned by the then Superintending Engineer (Highways) Coimbatore in C.R.No. 19/51-52. Tenders were called for and was compared with the rates of this revised estimate.

4/ Subsequently it was found necessary to revise the estimate 2nd time because of the excess amount involved over the amount administratively approved. The excess in this 2nd revised estimate is partly due to the high tender premium of 17.23% above the estimated rates, and partly due to certain extra provisions required during actual execution in the earthwork in foundations and in approach road formation. The tender excess alone works out to Rs. 11,000 while the extra provisions now made in the earthwork required during actual execution amount to Rs. 15,000/-. Other items which were not provided in the previous estimate such as extra leads and lifts in the formation of the approach road and the construction of Pylons, added additional amount of Rs. 7000/-. Though there has been savings to the tune of Rs. 8000/- in the lumpsum provisions made towards the land acquisition charges and the construction of sheds, which were not required during actual execution, the amount of the revised estimate II has exceeded by Rs. 25000/- over and above the I revised estimate for the reasons stated above.

5/ Slight alterations have been carried out in the structure which are explained in the specification report of the estimate. The difference between the Ist revised estimate and the IInd revised estimate are explained in detail in the comparative statement accompanying the estimate.

6/ In view of the above, I request a revised administrative approval for Rs. 1,24,000/- (Rs. 1.24 lakhs) may kindly be accorded and communicated to me.

Encl. Revised estimate one copy.

for Chief Engineer (Highways).

[C.No. 55259 A/55]

P.W(A-3)

COMMUNICATIONS - Bridges - South Kanara District - Reconstructing Bridge at mile 52/8 of Mangalore-Agumbe road - Revised estimate - Sanctioned.

Ref: G.O.Ms.No.2804 P.W. dated 26-7-49.
From the C.E(H) Ref.No.5020 E4/55-3 dated 28-6-55.

....

G.O.MS.NO. 3214 DATED 22.8.55

In the circumstances reported, the Govt. accord approval to a revised estima for Rs 1.24 lakhs (Rupees one lakh and twenty four thousand only) for the work of reconstructing the Bridge at Mile 52/8 of Mangalore-Agumbe road in South Kanara District in lieu of the estimate for Rs 90,000/- approved in G.O.No.2804 P.W. dated 26-7-1949.

2. It is observed that the work referred to above was completed and the bridge opened for traffic on 9th Nov.1953 The attention of the C.E.(H) is, in this connection, invited to the orders issued in G.O.Ms.No.2515 P.W.D dated 16-6-51 and he is requested to see that the revised estimates for works are submitted to the Govt. without delay. in future.

To
The C.E(H)
The A.G. thro' Fin.
Duplicate copy to A.G. by name.

3 S/cs.

CENTRAL DESPATCH BRANCH
Van / Post.
Despatched by ... Post.
Date 195 . Despatcher's Initials.

No. 55259 A/55)

P.W.D.(A-3)

Sub: COMMUNICATIONS - Bridges - South Kanara District - Reconstructing Bridge at mile 52/8 of Mangalore-Agumbe road - ~~Revised~~ - Revised administrative sanction.

Ref: From the C.E.(H) Ref.No. 5020 E4/55-3 dated 28-6-1955.

Please see the letter from the C.E.(H) on p.1 c.f.

2. In G.O. Ms. 2804 P.W.D. dated 26-7-49 the Govt. approved an estimate for Rs. 90,000/- for the work of reconstructing the bridge at Mile 52/8 of Mangalore Agumbe road in South Kanara District. The Chief Engineer(Highways) has now submitted a revised estimate for Rs. 1.24 lakhs for the work. The revised estimate exceeds the sanctioned estimate by 38% and the C.E.(H) has reported that the increase is due to the following:--

(1) Adoption of Schedule of rates for 1951-52 with certain minor modifications;

(2) The tender premium of 17.23% above the estimated rates;

(3) Extra provisions required during actual execution in the earth work in foundations and in approach road formation;

(4) Provision for extra leads and lifts in the formation of approach road etc. not included in the approved estimate.

3. It may be mentioned here that the work under reference was completed and the Bridge opened for traffic on 9th November 1953. According to the instructions issued in G.O.Ms.No. 2515 P.W. dated 16th June 1951, the Chief Engineer (Highways) should have submitted the revised estimate for sanction of the Government without delay. But in the present case, the Chief Engineer(Highways) has submitted the revised estimate only after one year and six months of its completion and has also not adduced any reasons for the delay in its submission. However it does not seem necessary to pursue this point. The revised estimate may be sanctioned. The attention of the C.E.(H) may, however, be invited to the instructions issued in G.O.Ms.No. 2515 P.W. dated 16-6-1951 and he may be told that he should, in future, submit the revised estimates for works for approval of Government without delay. Subject

55259 A/55

A 2
19/8

to orders a draft order is submitted below for approval.

Finance may see prior to circulation to M(W).

27.7.55

27.7.55 Fin

P.W.D. no. 55259 A/55
27.7.55

Fin (FB)

The draft order below may be amplified (the reasons for the excess are given in file)

5.8.55

P.W.D(A-3)

Fin. U.O. No. P2. P2/2855
P-8-55

The proposal in this file relates to the sanctioning of the revised estimate for Rs 1.24 lakhs for the work of reconstruction of the bridge at Mile 52/8 of Mangalore-Agumbe Road in South Kanara Dt. The facts of the case are explained in the notes on pp.1-2 above. The draft order below, which has been accpeted by Fin., may now issue after approval in circulation to M(W).

xx above

14/8/55

12.8.55

14/8/55

16.8.55

M(W)

19 AUG 1955

Specification report to accompany the II revised estimate for reconstructing the bridge at Mile 52/8 of Mangalore Agumbe road.

Original Estimate Rs.96000 sanctioned in C.R.12/50-51.
I Revised Estimate.Rs.99000 sanctioned in C.R.19/50-51.
II Revised estimate Rs. 1,24,000/- (Rs. 1.24 lakhs).

****

The original estimate sanctioned by the Superintending Engineer (Bridges) in C.R.No.12/50-51 for Rs. 96,000/- was based upon the current schedule of rates for 1950-51. Subsequently the I revised estimate was prepared allowing the then current schedule of rates i.e. for the period 1951-52, in which period tenders were called for. The I revised estimate was sanctioned by the Superintending Engineer (Highways) Coimbatore for Rs. 99,000/- in C.R.No. 19/51-52 with a few changes in the provisions of the original estimate.

The original estimate provided C.R. masonary II sort for the substructure below the R.L. 60.00 and C.R. masonary I sort above this level. These were changed in the I revised estimate to C.R.masonary II sort for the complete height of abutments and C.R. masonary I sort for the complete height of piers. Further, the wings which were not provided in the original estimate were provided in the I revised estimate.

The II revised estimate is prepared providing for the actuals as required during execution. The preparation of the II revised estimate has been necessitated partly due to the high tender premium of 17.23% above the estimated rates and partly due to the insufficient provision of earthwork in foundations and approaches made in the I revised estimate.

The tender excess alone works out to Rs.11,000/- while the extra provisions now made in the earthwork for foundations and approaches, baling out water, C.C. 1:3:6 mix for foundations etc. amounts to Rs. 15000/-. Other items now provided in the II revised estimate such as extra leads and lifts in the formation of the approach road, pylons to give architectural appearance for the bridge have increased the amount of revised estimate by Rs.7000/-. Savings to the tune of Rs. 8000/- have been effected in the lump sum provisions made towards the land acquisition charges and the construction of temporary sheds, which were not found necessary during actual execution.

Slight alterations carried out in the structure are as follows.

1. The foundations for the piers and abutments are laid after benching rock as a stepping. The bottom levels of the piers have been slightly altered to suit the rock level.

2. The levels of the top of foundation course of concrete as executed and as provided in the I revised estimate are given below.

	I revised estimate.	II revised estimate.
Mangalore side abutment.	54.00	55.00
Pier No.1	47.00	46.00
Pier No.2.	41.00	42.00
Agumbe side abutment.	58.00	58.00

3. The pier No.2 was constructed of Cement Concrete 1:3:6 mix with 1½" size hard granite metal instead of C.R. masonary I sort from R.L. 42.00 to 46.00 for fecility of execution. C.R. masonary first sort was adopted for the remaining height of pier.

4. The sections of the abutments are slightly altered to have steppings instead of uniform batters for the faces.

5. The wearing coat adopted is of 1:1½:3 mix with 66 2/3% of 1" and 33 1/3% of 1/2" size granite metal instead of 1:2:4 mix with 3/4" size granite metal.

....2.....

Provisions as actually required during execution are now made in the estimate for earth work in foundation and approaches. Provisions are also made for extra leads and lifts for earthwork in approach road formation, which were not provided in the I revised estimate. The amount actually required for baling out water in foundations is also provided in this estimat

Lump sum provisions made in the I revised estimate towards the land acquisition charges and the construction of temporary sheds for stores have been deleted since the same were not found necessary during execution.

K.K.Nambiar,
Chief Engineer (Highways).

(True Copy)

Technical Assistant to the
Chief Engineer (Highways).

Estimate Form.
Abstract.

Quantity. (1)	Description of work. (2)	Rate. (3)	Per. (4)	Amount. (5)
17900 Cft.	1. Earthwork excavation in all soils excluding rocks requiring blasting above water level including all leads and lifts.	100/-	100 Cft.	1790
17200 Cft.	2. ..do.. Below water level including all leads and lifts forming islands, ring bunds, shoring, strutting etc but excluding pumping and baling out water.	450/-	100 Cft.	7740
L.S.	3. Baling out water			4000
7 Sqft.	4. Benching rock in foundation.	1/-	Sq.ft.	7
1510 Cft.	Cement Concrete (1:3:6) mix with 1½" size hard granite broken stone for foundation and piers including pumping and baling out charges.	250/-	100 Cft.	3775
8300 Cft.	6. Coursed rubble masonary 2nd sort in Cement mortar 1:5 with hard granite stone including simultaneous pointing for abutments.	150/-	100 Cft.	12450
8100 Cft.	Coursed rubble masonary 1st sort ..do.. piers.	165/-	100 Cft.	13365
				43127
710 Cft.	7.(a) Cement Concrete 1:3:6 using 1½" I.R.C. size granite metal in foundation exclusive of baling out charges.	165/-	100 Cft.	1172
	8. Reinforced Cement Concrete (1:2:4) mix with 3/4" size hard granite broken stone including cost of materials, form work bending tying rods and placing in position etc. complete.			
156 Cft.	(a) For bed blocks.	8/-	Cft.	1248
2714 Cft.	(b) For T beams.	10.8.0	Cft.	28497
2121 Cft.	(c) For Deck slab.	6/0	Cft.	12726
165 Cft.	(d) For hand rails and Posts.	16/-	Cft.	2640
620 Cft.	(e) Cement Concrete (1:1½:3) mix with 66 2/3% of 1" size and 33 1/3% of 1/2" size hard granite broken stone for wearing coat over deck slab including cost and conveyance of all materials.	326.3.0	100 Cft.	2022
				8941
4000 Cft.	10. Gravel backing 6" thick for revetment.	15/-	100 Cft.	600
10400 Cft.	11. Rough stone dry packing for revetment.	50/-	100 Cft.	5200
190000 Cft.	12. Earthwork excavation in hard gravelly soil with initial lead and lift for forming approaches.	35/-	100 Cft.	6650
190000 Cft.	13. Provision for extra leads(average 3 leads)	7/-	100 Cft.	3990
190000 Cft.	14. Provision foe extra lifts(average 2 lifts)	7/-	100 Cft.	2660
2700 Cft.	15. Soling approaches with shingle available in the river bed.	42.8.0	100 Cft.	1148
				11680
2200 Cft.	16. Collection and supply of 2" I.R.C. size hard granite broken stone including cost and conveyance and stacking to departmental guage at site.	35/-	100 Cft.	770
1700 Cft.	17. Collection and supply of 1½" I.R.C. size hard granite broken stone including cost and conveyance and stacking to departmental guage at site.	40/-	100 Cft.	680
				11313

1.	2	3.	4.	5.
1700 Cft.	18. Collection and supply of gravel including cost and conveyance and stacking to departmental guage at site.	10/-	100 Cft.	1131 3 170
8800 Sft.	19. Spreading hard granite broken stone 2" I.R.C. size to a depth of 3", hand packing metal to camber, watering and consolidating by Power Roller including spreading the required quantity of gravel and including water lead etc complete.	5.12.6	100 Sft.	509
10200 Sft.	Spreading hard granite broken stone 1½" I.R.C. size to a depth of 2" hand packing metal to camber, watering consolidating by Power roller including spreading the required quantity of gravel and all water leads.	5.12.6	100 Sft.	590
75 Cft.	21. Providing coping over pier and abutment.	273.6.0	100 Sft.	205
L.S.	22. Providing expansion joints, contraction joints and copper plates etc and dismantling the existing bridge.		L.S.	1550
L.S.	23. Clearing heavy jungle and trimming the river upstream and downstream.		L.S.	1000
18 Rft.	24. Supplying and fixing 3" dia. Cement pipes	1.10.0	Rft.	29
				11731 3
205 Cft.	25. Construction of 4 pylons in C.C.(1:3:6) with 3/4" Rsize hard granite metal including all materials.	4.5.0	Cft.	884
L.S.	26. Unforeseen charges and Contingencies.		L.S.	3373 3600
L.S.	27. Petty supervision charges.		L.S.	~~1000~~
	Deduct credit for old materials.			1000
				124000

Rupees One Lakh and Twenty four Thousands only. (1.24 lakhs).

K.K.Nambiar,
Chief Engineer(Highways).

(TRUE COPY)

27655
Technical Assistant to the
Chief Engineer(Highways).

DETAILED ESTIMATE. 5 Agumbe

Name of the Work: Reconstructing the bridge at Mile 52/8 of Mangalore ~~Bajpe~~ Road.

Details of work. (1)	No. (2)	Measurement in feet. Length. (3)	Breadth. (4)	Depth. (5)	Area or Contents. (6)
Earthwork excavation in all soils excluding rock requiring blasting above water level including all leads and lifts for (as per actuals).					
Mangalore side abutment.	1	(40 plus 36)/2	24'-0"	(17 plus 10)/2	12312
Mangalore side Pier.	1	38'-0"	11'-0"	0.75	314
~~Mangalore~~ side. Agumbe side ~~pier~~	1	(43 plus 53.6)/2	9'-0"	3.6/2	783
Agumbe side abutment.	1	(36 plus 35)/2	15'-6" plus 13.3)/2	8'-9"	4439
					17898 or 17900 Cft.
2. Earthwork excavation in all soils excluding rock requiring blasting below water level including all leads and lifts forming islands, ring bunds shoring strutting etc excluding pumping and baling charges (as per actuals). on Mangalore side abutment.	1	11'-0"	15'-0"	4.65	767
..do..Mangalore side ~~pier~~ abutment	1	24'-0"	15'-0"	3.15	1134
..do.. Mangalore side Pier.	1	8'-10½"	11'-0"	12.84	1254
..do..	1	19'-0"	11'-0"	10.74	2245
..do..	1	9'-10½"	11'-0"	11.75	1276
Agumbe side Pier.	1	(43 plus 39)/2	(16 plus 11½)/2	18.0	9594
..do.. abutment.	1	35'-0"	13'-3"	2.0	928
					17198 or 17200 Cft.
3. Baling out water.					L.S.
4. Benching rock in foundation under Mangalore side abutment.	1	(6 plus 5)/2	1'-3"		7 Cft.
5. Cement concrete (1:3:6) mix with 1½" size hard granite broken stone under abutment and pier excluding pumping and baling charges for Mangalore side abutment.	1	21'-0"	9'-6"	0.43	86
..do..	1	8'-0"	9'-6"	1.85	141
..do.. pier.	1	6'-10½"	7'-0"	1.49	72
..do..	1	19'-0"	7'-0"	1.09	145
..do..	1	7'-10½"	7'-0"	1.10	101
Agumbe side Pier. 42..00	1	33'-9"	7'-0"	1.84	437
..do.. abutment.	1	29'-0"	9'-0"	2.0	522
					1504 or 1510 Cft.
6. Coursed rubble 2nd sort in C.M.1:5 with hard granite stone including simultaneous pointing for abutment. (Mangalore side).					
From 55.00 to 60.00	1	27'-6"	8'-0"	5.0	1100
From 60.00 to 68.00	1	27'-6"	7'-6"	8.0	1650
From 68.00 to 70.00	1	27'-6"	7'-0"	2.0	385
From 70.00 to 71.00	1	27'-6"	6'-4½"	1.0	175
Wings 70.00 to 72.00	2	0'-7½"	3'-0"	2.0	8
					3318
Abutment 71.00 to 72.00	1	27'-6"	6'-1½"	1.0	168
Abutment 72.00 to 74.00	1	27'-6"	5'-6"	2.0	303
Wings 72.00' to 74.00	2	1'-3"	3'-0"	2.0	15
Abutment 74.00 to 76.	1	27'-6"	4'-7½"	2.10	360
Wings 74.00 to 76.10	2	1'-10½"	3'-0"	2.10	32
76.10 to 77.10	2	2'-6"	3'-0"	1.0	15
Abutment 76.10 to 77.10	1	~~27'-6"~~	27'-6"	3'-9"	1.0	103
Baling out abutment from 77.10 to 81.48	1	27'-6"	1'-6"	4.38	181
Wings 77.10 to 81.73	2	2'-9"	2'-6"	4.63	70
Agumbe side abutment from 58.00 to 66.00	1	27'-6"	7'-6"	8.0	1650

1.	2.	3.	4.	5.	6.
66.00 to 68.00	1	27'-6"	7'-0"	2.0	385
68.00 to 69.00	1	27'-6"	6'-6½"	1.0	180
69.00 to 70.00	1	27'-6"	6'-3½"	1.0	173
Wings 68.00 to 70.00	2	0'-5½"	3'-0"	2.0	6
Abutment 70.00 to 71.00	1	27'-6"	5'-10"	1.0	160
Abutment 71.00 to 72.00	1	27'-6"	5'-8"	1.0	156
Wings 70.00 to 72.00	2	0'-11"	3'-0"	2.0	11
Abutment 72.00 to 74.00	1	27'-6"	5'-2½"	2.0	286
Wings 72.00 to74.00	2	1'-4½"	5'-0"	2.0	28
Abutments 74.00 to 76.00	1	27'-6"	4 -6"	2.0	248
Wings 74.00 to 76.00	2	1'-10"	3' 0"	2.0	22
Abutments 76.00 to 77.00	1	27'-6"	3'-9½"	1.10	192
Wings.	2	2'-3½"	3'-0"	1.10	25
Wings 77.00 to 78.00	2	2'-9"	2'-6"	4.63	64
Backing out abutment. from Back wall. 77.10 to 81.48	1	27'-6"	1'-6"	4.38	181
					8332
Deduct for bed blocks	2 x 4	3'-3"	2'-0"	1'-0"	52
					8280 or 8300.

7. Coursed rubble I sort in Cement mortar 1:5 with hard granite stone including simultaneous pointing.

Pier No.1 Mangalore side from					
46.00 to 47.00	1	6'-1½"	5'-6"	2.0	67
47.00 to 48.00	1	7'-1½"	5'-6"	1.0	39
48.00 to 52.00	1	32'-3"	5'-6"	4.0	710
Pier. 46.00 to 52.00	1	32'-3"	5'-6"	6.0	1064
Pier Nos. 1 and 2. 52.00 to 60.00	2	31'-9"	5'-0"	8.0	2540
Pier Nos. 1 and 2 60.00 to 68.00	2	23'-6"	4'-6"	8.0	1692
Cutwater for pier Nos 1 & 2	2 x 2	0.6142	(4-6)	8.0	39
68.00 to 77.10	2	23'-6"	4.0	9.10	1849
Cut water ..do..	2 x 2	0.6142	(4-0)	9.10	97
					8147
Deduct for bed blocks.	2 x 4	3'-3"	4'-0"	1.0	104
					8043 or 8100 Cft

7.(a) Cement concrete 1:3:6 using 1½" broken stones in foundations exclusive of baling charges.

Pier No.2 from 42.00 to 46.00	1	32'-3"	5'-6"	4.0	710 Cft

8. Reinforced Concrete (1:2:4) mix with 3/4" size hard granite broken stone including cost of materials bending, laying and fixing the reinforcement as specified.

a) For bed blocks quantity same as original estimate.	156 Cft
b) For T. ribs.	2714 Cf
c) Deck slab and kerb.	2121 Cf
d) Providing R.C.hand rails with 7" x 5" posts at 46/10 centering and two sets of 6" x 5" in section 12" apart including fastening ~~and~~ to the slab as shown in the drawing. Quantity same as original estimate.	165 Cft

9. Cement Concrete (1:1½:3) hard granite broken stone mix with 66 2/3% of 1" metal and 33 1/3% of 1/2" metal for wearing coat over deckslab including cost and conveyance of all materials

1st span.	1	45'-6"	22'-0"	(0'-3" plus 2")/2	208.54
IInd span.	1	43'-11½"	22'-0"	(0'-3" plus 2")/2	201.46
IIIrd span.	1	43'-11½"	22'-0"	(0'-3" plus 2")/2	20146
Over abutment or Agumbe side.	1	1'-6"	22'-0"	(0'-3" plus 2")/2	6.88
					618.34 or 620 Cft.

1.	2.	3.	4.	5.	6.
10. Gravel backing 6" thick for revetment. Quantity same as per original estimate.					4000 Cft.
11. Rough stone dry packing for revetment.			..do..		10400 Cft.
12. Earthwork excavating in hard gravelly soil with initial lead and lift for forming approaches.			L.S.(Actuals)		190000 Cft.
13. Provision for extra leads.					L.S.
14. Provisions for extra lifts.					L.S.
15. Soling approaches with shingle available in the scour bed from L.S. on Agumbe side.					
8.31 to 12.31	1	400	13'-0"	0'-6"	2600
Extra for extra width of soling to be done on the curves.					50
					2650 or 2700 Cft.
16. Collection and supply of 2" I.R.C. size hard granite broken stone including cost conveyance and stacking from bottom layers of 3" thick.					
L.S. 457 to 697.0	1	240	12'-0"	0'-3"	720
L.S. 831 to 12,61	1	430	12'-0"	0'-3"	1290
Add extra for the extra width of metalling to be provided on the curves.					190
					2200 Cft.
17. Collection and supply of 1½" I.R.C. size hard broken granite stones including cost and conveyance and stacking charges for top layers of 2" thick.	1	300	12'-0"	0'-2"	600
	1	480	12'-0"	0.2"	960
For extra width and curves.					140
					1700
18. Collection and supply of quantity of gravel including stacking per item above.					1700 Cft.
19. Spreading hard granite broken stone 2" I.R.C. size to a depth of 3" hard packing metal to camber watering and consolidation by power roller including all leads of water					
L.S. 4.57 to 6.97	1	240	12.0		2880
L.S.8.31 to 12.61	1	430	12.0		5160
Add extra width of metalling to be provided at.					760
					8880 Sq.ft.
20. Spreading 1½" metal to a depth of 2" including Hand packing metal to camber, spreading gravel watering and consolidation with power roller.	1	300	12	~~36.0~~	36.00
	1	480	12.0		57,60
Extra for the extra width to be provided at the curves.					840
					10200
21. Cement Concrete 1:3:6 with 3/4" including cost and conveyance of all materials to site laying curing etc. complete for coping over piers and abutments cape over cut water etc. for piers.	2 x 2	2' -½"	4'-6"	0'-6"	18
	2 x 2	0.6142 x	$(4.5)^2$	0'-6"	25
	2 x 2	(2'-½" x 4.51 to 6142 plus 452)		0.31/3	7
for abutment.	2 x 2	4'-3".	2'-3"	0'-6"	19
	2 x 2	4'3"	2'-3"	0'-3/3	3
					72 or 75 Cft.

1.	2.	3.	4.	5.	6.
22. Providing expansion joints and copper plates etc dismantling the existing bridge.					L.S.
23. Clearing heavy jungle and trimming the river upstream and downstream.					L.S.
24. Supplying and fixing 3" diameter Cement pipes in position.	12	1'-6"			18 ft.
25. Construction of four pylons in Cement Concrete (1:3:6) mix with 3/4" size hard granite broken stone including cost of all materials.					
	4	3'-0"	2'-8"	0'-8"	21.33
	4	3'-0"	2'-2"	0'-3"	6.5
Pillars.	4	2'-3"	1'-5"	10'-11"	139.18
Side projection.	4	6'-4"	0'-1½"	10'-9½"	34.18
Top projection.	4	2'-0"	2'-2"	0'-1½"	1.16 or 210 Cft.
					202.35 or 210 Cft.
26. Unforeseen items and contingencies.					L.S.
27. Major Supervision charges.					L.S.

DATA SHEET.

Reconstructing a bridge at mile 52/8 of Mangalore Agumbe Road.

Item Number. (1)	Quantity. (2)	Description.of work. (3)	Rate. (4)	Per. (5).	Amount. (6).
I.		Cement concrete (1:1½:3) with 66 2/3% of 1" size and 33 1/3% of 1/2" size hard granite broken jelly, for wearing coat over deck slab including cost and conveyance of all materials. 100 Cft.			
	100 Cft.	Rate as per agt. using 3/4" jelly and 1:2:4 mix.			275..0..0
	66 2/3 Cft.	1" hard broken stone including conveyance as per original estimate.	50..1..0	100Cft.	33..6..0
	33 1/3 Cft.	1/2" hard broken stone including conveyance as per original estimate.	80..1..0	100Cft.	26.11..0
					60..1..0
II.	- 100 Cft.	3/4" jelly.	64..8..0	100Cft.	64..8..0
					- 4..9..0
		add 17.23% tender premium.			- 0.12..3
		Net deduction.			- 5..3..3
	9½ (Vide revi-		121.0.0	Ton.	45.15..8
	sed estimate Data)Original.	Add cost of Cement at recovering rate.	121.0.0	Ton.	27..5..0
					326..2.11
					or
					326..3..0
III.		Spreading hard granite broken stone 2" I.R.C. size to a depth of 3" hand packing metal to camber, watering and consolidating by Power roller including spreading the required quantity of gravel and all water leads. 100 Sft.			
	100 Sft.	Rate: Hand roller rolling as per agreement.	5..0..0	100Sft.	5..0..0
		Add extra for Power Roller (S.I.269)	0.12.6	100Sft.	0.12..6
		Total.			5.12..6
IV.		Spreading hard granite broken stone (1½" I.R.C. size to a depth of 2" etc).			
	100 Sft.	Rate with handroller rolling as per agreement.	5..0..0	100Sft.	5..0..0
		Add extra for Power Roller (S.I.269)	0.12..6	100Sft.	0.12..6
		Total.			5.12..6
V.		Cement concrete (1:3:6)as per drawing with 3/4" hard granite broken stone including cost of Cement 3 lbs of steel and 2.9 Sft of centering per Cft of concrete.			
	100 Cft.	Rate for Cement concrete 1:2:4 as per data (S) of revised estimate.	220.0.0	100Sft.	220..0..0
	8 Cft.	Deduct cost of cement for 1:3:6 concrete	121.0.0	~~121.0.0~~ Ton	38.11..6
					181..4..6
		out of this Cost of Cement is.	77..7..0		
		Rate per Cft.	1..13..0		
	2 Sft.	Centering charges. Rs.0.11.3 plus 20%	0..13..6	Sft.	1..11.0
	3 lbs.	Binding, tying grills 5.12.0 plus 20%	6.14...5	L Cwt.	0..3..0
		Add contractors tender premium of 17.23% on all items except Cost of Cement, iron Rs. 2.14.7			
	3 lbs.	Add cost of steel and recovering rate	468.0.0	Ton.	0.10..0
					4..5..0
VI.		Cement concrete 1:3:6 mix for coping work using 3/4" jelly with 3/4Sq.ft of centering per Cft of concrete.			
	100 Cft.	Rate as per above item.	181.4.6	100Cft.	181..4..6
	75 Sq.ft.	Add cost of centering at 0.11.3 plus 20%	0.13.6	Sft.	63..4..6
					244..9..0
		Add Contractors tender premium of 17.23% on all items except cost of Cement for Rs. 167..2..0			28.12..8
					273..5..8
					273..6..0

1.	2.	3.	4.	5.	6.
VII.		Supplying and fixing 3" diameter R.C. pipe for drainage for the deck.			
	1 Rft.	Current market rate.	1..2..0	Rft.	1..2..0
		Conveyance and fixing charges.	0..4..0	Rft.	0..4..0
					1..6..0
		Add tender premium of 17.23%			0..3..9
					1..9..9 or 1.10..0
		Collection and soling (shingle stone 6" from a lead of 2 furlongs by head loads stacking or premeasurement spreading and picking with 25 Cft of 2" to 3" shingle for 100 Cft, spreading gravel 3" thick and rolling with power roller.	61..0..0	100Cft.	61..0..0
		Estimate rate for soling with soling 6" stones.			
		Deduct cost and lead for stones as per original data.			36..1..0
					24.15..0
		Add Lead for 100 Cft shingle 2 furlongs load at Rs. 4.7.0 plus 20% extra for special locality for 133 1/3Cft,			7..12..10
		stacking charges for 133 1/3 Cft.			1...1...7
		Sundries including stacking etc.			1...2...7
					35..0..0
		Add over all percentage of 17.23%			6..0..5.8
	100 Cft.	Add for power roller at 0.11.10 ~~plus~~ per 100 Sft.			1..7..8
		(1..0..0 (0.3.6) 120/100)			42..8..1.8 or 42..8..0

ESTIMATE FORM - Comparative Statement of Differences

Reconstructing the Bridge at 52/8 of Mangalore Agumbe Road.

Description of work	Original Estimate			Revised Estimate			More	Less	Explanation of difference.
	Quantity	Rate	Amount	Quantity	Rate	Amount			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			Rs.			Rs.	Rs.		
1. E.W.Excavation in all soil	6000 cft.	28-12-0	173- 0-0	17900	100- 0-0	1790	1617- 0-0		As per actual execution the quantity required was more. Added with high tender premium the cost has increased.
2. E.W. Below water level including bailing charges.....	12000	28-12-0	345- 0-0	17200	450- 0-0	7740	7395- 0-0		
3. Bailing out water	L.S.		3000/-	-	-	4000	1000- 0-0		As found necessary during actual execution
4. Benching rock in foundations.	750	1- 4-0	938/-	7/-	1- 0-0	7/-	-	931/-	As it was found during execution that there was no necessity to do benching except for a small area
5. Cement Concrete (1:3:6) mix with 1½" size metal including cost and conveyance of all materials laying etc.	900 Cft.	155- 0-0	1395/-	1510	250- 0-0	3775/-	2380- 0-0		As the thickness of foundation course was increased during actual execution- Quantity is more. cost also has increased due to higher tender premiun

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
6. Coursed Rubble Masonry II sort in C.M 1:5 with hard granite stone including simultaneous pointing	8353 C,ft	126- 0-0	10521/-	8300	150- 0-0	12450/-	1029- 0-0		The amount has increased due to higher quoted rates.
7. Coursed Rubble Masonry 1st sort in c.m.1:5 with hard granite stone including simultaneous pointing.	9400	152- 8-0	14335/-	8100	165- 0-0	13365			Savings in quantity is due to the adoption of CC instead C.R.Masonry.
7(a) Cement concrete 1:3:6 mixing hard granite metal 1½" IRC excluding bailing charges etc.				710/-	165- 0-0	1172	202- 0-0		The excess in amount is due to tender premium and C.C.adopted for facility during execution.
8. Reinforcement cement concrete(1:2:4) mix with 3/4" size hard granite jelly including cost & conveyance of all materials to site, mixing laying,trying rods etc.									
(a) Complete for bed blocks	156	6- 6-0	995/-	156 Cft	800- 0-0	1248/-	253/-		Due to tender premium
(b) Complete for T ribs.	2714	9-10-0	26122/-	2714	10- 8-0	28497/-	2375/-		-do-
(c) Deak slab	2121	5-10-0	11931/-	2121/-	6- 0-0	12726/-	795/-		-do-
(d) R.C.Hand Rails	165	11- 0-0	1815/-	165/-	16- 0-0	2640/-	825/-		-do-

1	2	3	4	5	6	7	8	9	10
9. Cement Concrete (1:2:4) with 3/4" size hard granite metal including cost and conveyance of all materials for wearing cost.	500	226/-	1130/-					1130/-	Wearing coat was laid using C.C.1:1½:3 mix instead of with c c. 1:2:4 vide item 26.
10. Gravel backing 6" thick for revetment including cost of materials.	4000	13- 8-0	540/-	4000/-	15/-	600/-	60-00-0-		Due to tender premium
11. Rough stone dry packing for revetment	10400	47-12-0	4966	104000/-	50/-	5200/-	234- 0-0		-do-
12 E.W.execution in hard gravelly soil for approach.	80000	28-14-0	2310	190000/-	35/-	6650/-	4340- 0-0		Provision made in the original est. found insufficient and as per the requirement on actual execution the quantity is provided in the R.E.Added with the high tender premium the cost has gone up.
Provision for extra leads									
13. / (8 extra leads)	28	1000	190000		7/-	3990	5650- 0-0		-do-
14. -do- (2 extra leads)	.....	.....	190000		7/-	2460/-			
15. Soling approaches with Shingle available in river bed.	L.S.		500/-	2700	42/8/-	1148/-	648- 0-0		As per actual execution Rs.648/- was required more than the provision in the original estimate.

1	2	3	4	5	6	7	8	9	10
16. Collection and supply of 2" metal	1750	35-11-0	625/-	2200	35/-	770/-	145/-		Provided extra quantity as found necessary during execution. Hence the cost has exceeded. Due to tender premium, The amount has increased.
17. -do- 1½" metal	1200	40- 8-0	486/-	1700	40/-	680/-	194/-		
18. Collection of gravel including cost conveyance and Blacking	1200	7-12-0	93/-	1700	10/-	170/-	77/-		
19. Spreading 2" IRC size metal to a depth of 3" depth	6950	1-15-0	135/-	8800/-	5-12-0	509/-	374/-		-do-
20. Spreading 1½" IRC Size metal to a depth of 2" thickness	6950/-	1-13-9	129/-	10200/-	5-12-6	590/-	461/-		
21. Providing concrete coping.	L.S.		50/-	75	273-6-0	205/-	155/-		Lumpsum provision made in the original estimate found insufficient.
22. Providing expansion joint and boring under T beams etc and dismantling old bridge clearing heavy jungle and trimming	L.S.		1550/-			1550			
23. Training river upstream and down stream	L.S.		1000			1000			
24. Cement concrete 1:1½:3 with 66⅔% of 1" size and 33⅓% of ½"size hard granite metal for wearing coat.				620/-	326-3-0	2022	2022		Wearing coat was laid with C.C.1:1½:3 construction as it is much dense than the 1:2:4 mix with 3/4" size metal was necessary

25. Land acquisition charges	L.S.	1500			1500		1500	As in land acquisition Hence savings.
26. Supplying and fixing asbestose C pipe in fixture			1sqft	1-10-0	29	29	~~1500~~	
27. Unforeseen & contingencies	L.S.	3916			3333/-		583	Extra items were met from the amount.
28. Construction four pylons in C C (1:3:6)mix with $\frac{3}{4}$" metal			210 Cft	4- 5-0	884/-	884/-		Pylons were provided t give aesthetic appearance to the b bridge.
29. Supervision charges	L.S.	6000/-			3600		2400	
30. constructing temporary sheds for store and watchmen.	L.S.	2500					2500	~~Detailed~~ Shed was not constructed fo store.
Total		100000			125000	33444	8444	
Deduct credit for old bridge		1000			1000			
		99000			124000			

Amount of original estimate 99000

*~~Deduct savings~~ ~~Excess~~

Add the excess amount to the O.E.amount 25000

124000

(Rupees One lakh and twenty four thousands only)

True copy

Technical Assistant 27-6-55 to the Chief Engineer Highways.

Sd. K.K. Nambiar

CHIEF ENGINEER Highways